

HAWAII STATE DEPARTMENT OF HEALTH

DISEASE OUTBREAK CONTROL DIVISION ENVIRONMENTAL HEALTH SERVICES DIVISION STATE LABORATORIES DIVISION

West Nile Virus Surveillance Report



I. Surveillance of West Nile Virus (WNV) on the Mainland:

As of June 27, 2006, 22 states have reported avian, animal, or mosquito WNV infections to the Centers for Disease Control and Prevention (CDC) ArboNET. Human cases have been reported in Mississippi (1), Texas (2), California (1), and Colorado (1). For more detailed information, refer to the CDC website at <http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>.

* National Data presented in this report is obtained from the CDC's Weekly WNV Summary.

II. Hawaii's Mosquito Surveillance:

**Distribution of Mosquito Traps by County
N=113**

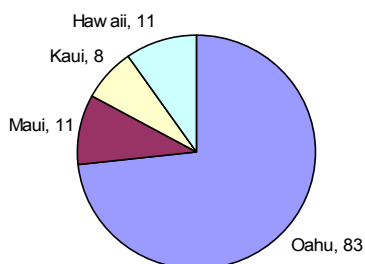


Figure 1

Mosquito Pools Tested by County N=1189

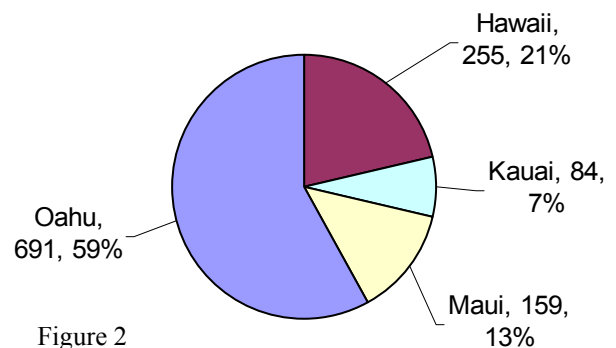


Figure 2

Surveillance for WNV in mosquitoes takes place on all islands. (Figure 1). Oahu's mosquito's are pooled and tested for WNV by reverse transcriptase polymerase chain reaction (RT-PCR). To date, in 2006, 691 mosquito pools (34,550 mosquitoes) have been tested by RT-PCR at the State Laboratories Division (SLD; Figure 2).

Maui, Kauai, and Hawaii pools are currently tested by Rapid Analyte Measurement Platform (RAMP). To date, in 2006, 498 pools of mosquitoes (24,500 mosquitoes) have been tested by RAMP on the neighbor islands.

Traps are located near ports, harbors, and wetlands. All tests (testing began May 2004) have been negative with the exception of two false positive (i.e., negative when retested by RT-PCR) RAMP tests out of 1343 pools. There have been 5,022 mosquito pools, comprising 251,100 total mosquitoes, tested since April 2004.

¹ The mosquito pool data are reported by the SLD and extracted from the WNV database (Colorado database)

III. Hawaii's Dead Bird Surveillance:

AUW 211 DEAD BIRD CALLS 2006

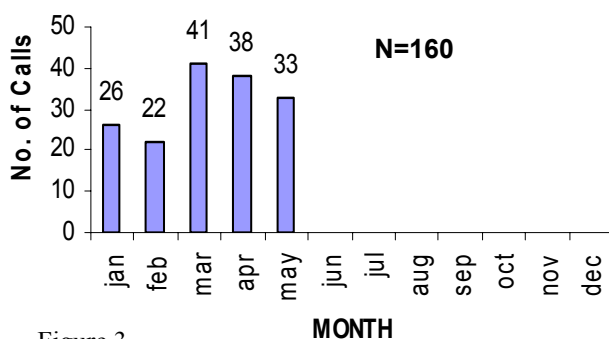


Figure 3

correctly identify birds, so that accurate species information can be entered into the database.

Dead Bird Testing:

To date, in 2006, there have been 214 birds tested for WNV at SLD in comparison to 152 birds tested by this time in 2005 (Figure 4). All of these tests were RT-PCR negative.

The number of dead birds tested was up slightly to 52 in May (April: 46 tested). The average number of dead birds tested per month in 2005 was 36 tests/month. To date in 2006, the average is 42 tests/month. These tests are RT-PCR tests performed at SLD (Figure 5). Dead birds are initially tested by the RAMP method on Kauai and Hawaii before they are sent to SLD for RT-PCR testing.

The public can report dead birds via the Aloha United Way (AUW) 211 number. To date AUW operators have fielded 160 calls from the public (Figure 3). This year there has been an average of 32 calls/month compared with 26 calls/month in 2005. In 2004 there was a spike (78 calls/month average) in the calls during September and October due to a report in the news of a false positive bird on Maui.

The decision tree that AUW uses was updated to reflect different methods of reporting. Bird identification books were given to AUW operators to help them

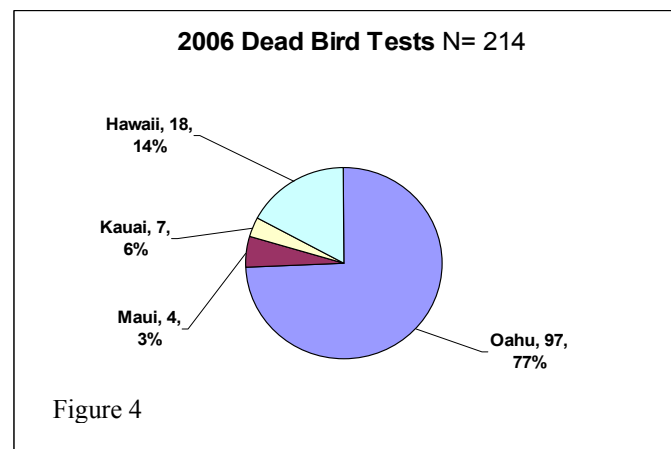


Figure 4

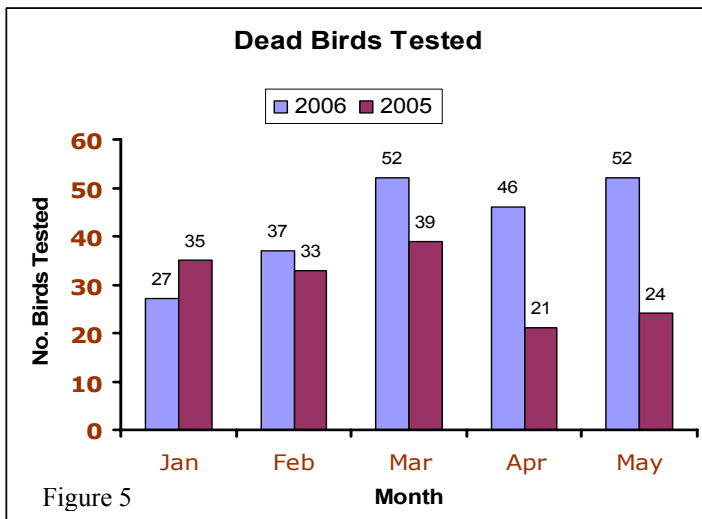


Figure 5

Mejiros have been shown to be susceptible to death from WNV infection and are better candidates for dead bird surveillance. (Hofmeister, 2006 unpublished)

There have been 5 false positive RAMP tests since testing began in 2004 out of 279 RAMP tests conducted on dead birds. These false positives were all confirmed as negative when retested using RT-PCR.

The predominate avian species tested in 2005 were **Doves** and **Avian Other** (which include chickens; Figure 6), in which WNV does not normally cause mortality. **Finches**, **House Sparrows**, **Cardinals**, and

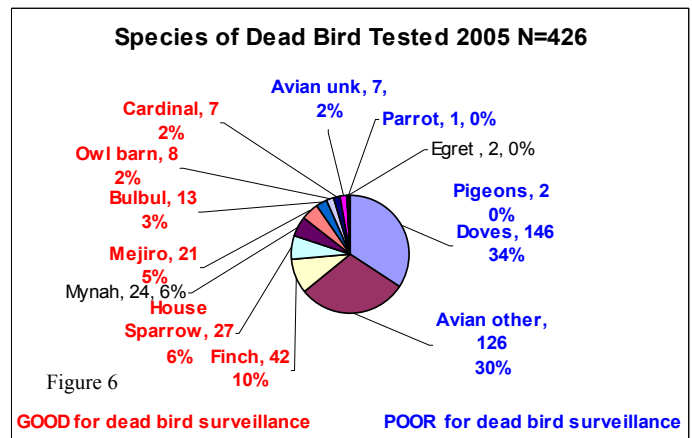


Figure 6

GOOD for dead bird surveillance

POOR for dead bird surveillance

IV. Live Bird Surveillance

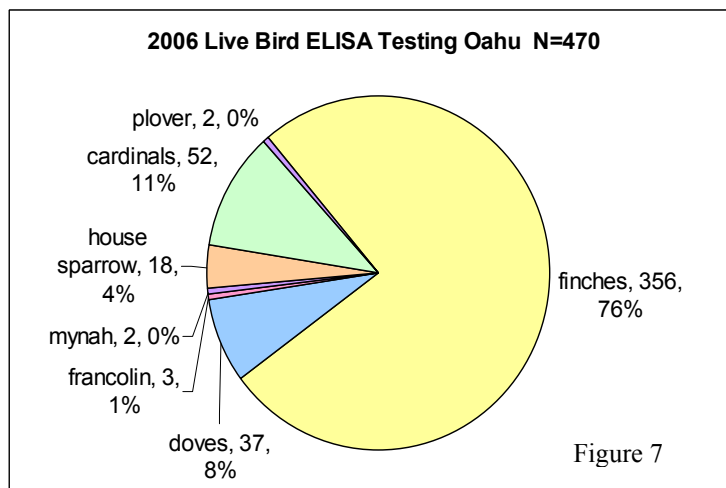


Figure 7

Live bird surveillance on Oahu is limited to the major ports of entry: Honolulu Airport, Dillingham Airfield, and Kalaeloa. Approximately 30 birds per week are captured, bled, and tested for WNV antibodies by epitope-blocking enzyme-linked immunosorbent assays (ELISA) test at SLD. In contrast to dead bird testing, desirable species for live bird surveillance are those considered resistant species or those that may survive the disease and are later captured (Figure 7).

Average turn around time in 2005 (from blood collection to reporting of results) was 6 days. In 2006, this has improved to an average of 3 days.

Currently, there is no live bird testing at the neighbor island ports of entry.

Year	# ELISA Tests
2004	646
2005	1214
2006	500

There have been no true positives to date.

V. Equine Surveillance

The Hawaii Department of Agriculture mailed letters to all the licensed veterinarians in Hawaii working with horses and requested surveillance for horses with signs of neurological disease.

Serum (blood) samples were submitted by private veterinarians from horses with clinical signs of WNV including incoordination, especially in the rear limbs; drooping lips and lip smacking; generalized weakness; muscle twitching; head drooping; lethargy; unresponsiveness; grinding teeth; fever; recumbency (inability to rise); seizures; and coma.

2005 4 samples run for WNV; all negative
2006 0 samples run to date

VI. Human Surveillance

The Hawaii Department of Health (HDOH) requests that physicians and diagnostic laboratories report cases of neurological disease with symptoms consistent with WNV.

Human samples run in 2005: 35; one positive test for WNV fever (imported Palm Springs, CA)
The sources of these were: 33 Lab reported
1 Infectious disease control report
1 Other source

Human samples run in 2006: 7; all tests negative
The sources of these were: 6 Lab reported
1 Self reported

VII. Summary

The State of Hawaii is currently WNV free. The public can help tremendously by keeping the areas around homes free of mosquito breeding sites by, for example: emptying standing water in old tires, bottles, and planter overflow trays; cleaning clogged gutters; and using mosquito eating fish in fish ponds and water gardens. Call 211 to report dead birds.

For more information on WNV and mosquito control call 211 or visit the HDOH website at www.hawaii.gov/health. The AUW 211 WNV hotline is operational from most land lines and many cell phones. It does not work from payphones. The alternate AUW WNV hotlines are 877-275-6569 (toll free), ASK-2000 (on Oahu), or 808-ASK-2000 (from neighbor islands).

Mosquito cartoon on first page by Michael Furuya.